Discipline :- ETC	Semester:- 5TH	Name of the Teaching Faculty:-Anchal Sundar Ray
Subject:-VLSI & EMBEDDED SYSTEM	No of Days/per Week Class Allotted :- 04	Semester From:- 15/09/2022 To:- 22/12/2022
Week	Class Day	Theory
1ST	1	Historical perspective- Introduction
	2	Classification of CMOS digital circuit types
	3	Introduction to MOS Transistor& Basic operation of MOSFET.
	4	Structure and operation of MOSFET (n-MOS enhancement type)
2nd	1	Structure and operation of cmos
	2	MOSFET V-I characteristics,
	3	Working of MOSFET capacitances.
	4	Modelling of MOS Transistors including Basic concept the SPICE level-1 models, the level-2 and level -3 model
3rd	1	Flow Circuit design procedures
	2	VLSI Design Flow & Y chart
	3	Design Hierarchy
	4	VLSI design styles-FPGA, Gate Array Design, Standard cells based, Full custom
4th	1	Simplified process sequence for fabrication
	2	Basic steps in Fabrication processes Flow
	3	Fabrication process of n-MOS Transistor
	4	CMOS n-well Fabrication Process Flow

5th	1	MOS Fabrication process by n-well on p-substrate
	2	
	3	CMOS Fabrication process by P-well on n-substrate
	4	
6th	1	Layout Design rules
	2	Stick Diagrams of CMOS inverter
	3	Basic n-MOS inverters
	4	Working of Resistive-load Inverter
7th	1	Inverter with n-Type MOSFET Load
	2	Enhancement Load,
	3	Depletion n-MOS inverter
	4	CMOS inverter – circuit operation
8th	1	characteristics and interconnect effects: Delay time
	2	CMOS Inventor design with delay constraints
	3	Two sample mask lay out for p-type substrate
	4	Define Static Combinational logic
9th	1	working of Static CMOS logic circuits (Two-input NAND Gate)
	2	Introduction to Dynamics logic circuits & Memories
	3	CMOS logic circuits (NAND2 Gate)
	4	CMOS Transmission Gates(Pass gate)

10th	1st	Complex Logic Circuits - Basics
	2nd	Classification of Logic circuits based on their temporal behaviour
	3rd	
	4th	SR Flip latch Circuit,
11th	1st	Clocked SR latch only.
	2	CMOS D latch.
	3rd	
	4th	Basic principles of Dynamic Pass Transistor Circuits
12th	1st	Dynamic RAM, SRAM,
	2nd	Flash memory
	3rd	Design Language (SPL & HDL)& HDL & EDA tools & VHDL and packages Xlinx
	4th	Design strategies & concept of FPGA with standard cell based design
13th	1st	VHDL for design synthesis using CPLD or FPGA
	2nd	Raspberry Pi - Basic idea
	3rd	Embedded Systems Overview
	4th	list of embedded systems, characteristics ,example – A Digital Camera
14th	1st	Embedded Systems Technologies--Technology – Definition
	2nd	Technology for Embedded Systems, Processor Technology , IC Technology
	3rd	Design Technology-Processor Technology,General Purpose Processors – Software
	4th	Basic Architecture of Single Purpose Processors – Hardware

15th	1st	Application – Specific Processors,Microcontrollers,Digital Signal Processors(DSP)
	2nd	IC Technology- Full Custom / VLSI,Semi-Custom ASIC (Gate Array & Standard Cell)
	3rd	PLD (Programmable Logic Device)
	4th	PLD (Programmable Logic Device)

Anchal Sunder Ray
Teaching Faculty
30.09.2022

30/09/2022
HOD , ETC

30/9/2022
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